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ABSTRACT

This study measured infant responses to mother and stranger as a function of mother and stranger distance. A group of 10-month-old infants were pretested for level of object permanence and person permanence, and 18 males and 18 females were chosen as study participants. The infants were randomly assigned to one of three treatment groups: (1) stranger near, (2) stranger far, or (3) stranger absent. In each treatment group, there were three 5-minute trials with the mother near, far, and absent. Observations of the infant (proximity to mother and stranger, fussing, crying, and playing with a novel toy) were made by the experimenter, who was concealed behind a wooden partition set up in the infant's living room. The results indicated that stranger distance from the infants was unrelated to their behavior but that both mother distance and trial number had significant effects. As mother-infant distance increased, babies fussed sooner and longer, and played less with the novel toys. As the trial number increased, the infants crawled to their mothers earlier in the trial, fussed sooner, and played less with the novel toy. These findings were interpreted as supporting Bowlby's contention that attachment behavior is related to the degree of maternal accessibility. (JMB)

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Effects of Mother and Stranger Distance on Infants' Behavior

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Laboratory research on infant attachment behavior has studied the effects of varying degrees of maternal and stranger presence on the infants' responses (Ainsworth & Bell, 1970; Corter, 1973; Corter, Rheingold, & Eckerman, 1972; Maccoby & Jacklin, 1973; Morgan & Ricciuti, 1969; Scarr & Salapatek, 1970). Since the generalizability of this research to the everyday life of the child can only be assumed, the present study was conducted to measure infant responses to mother and stranger as a function of mother and stranger distance in situ, that is, in the infants' homes. We measured effects on infants' proximity to mother and stranger, fussing, crying, and playing with a novel toy.

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Since Bowlby (1973) suggests that infants experience an anxious fear when the attachment figure leaves, and includes "sheer distance from mother" and maternal absence as conditions which activate attachment behavior (1969), I hypothesized that the greater the infant's distance from his mother, the more upset he would be, and the more vigorous his efforts to re-establish proximity to her. Results obtained by others in the laboratory (e.g., Maccoby & Jacklin, 1973) lend further support to this prediction.

I also hypothesized that the smaller the distance to the

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stranger, the greater the infant's distress and the stronger his attachment behavior would be. This follows from previous laboratory studies (Morgan & Ricciuti, 1969; Scarr & Salapatek, 1970) and represents an attempt to extend previous findings on the effects of strangers on infant behavior to the home setting.

Finally, I believed that the closer the mother was to the infant, the more willing the baby would be to approach the stranger. This hypothesis follows the notion that the infant's mother provides a secure base for his exploration (Ainsworth, 1964).

Method

Subjects

Subjects were 36 ten-month-old infants. Since the infants' attachment behaviors, and particularly their responses to mothers' absence, may be affected by their level of object concept attainment, the degree of object concept development was controlled. Infants were pre-tested for level of object permanence and person permanence using the instrument developed by Sylvia Bell (1970). This was done two to three days prior to the experiment. Those babies who were able to follow a random series of visible displacements on the object scale and a random series of invisible displacements on the person scale were used for the study.

There were 18 male and 18 female subjects. Since preliminary t-tests indicated no significant sex differences on the dependent variables, the data for the two sexes were pooled for the subsequent analyses.

Design

The subjects were randomly assigned (within sex) to one of three treatment groups: stranger in the same room as the subject (stranger near), stranger visible to the subject but in an adjacent room or hall (stranger far), or stranger in an adjacent room or hall and not visible to the infant (stranger absent).

In each treatment group, three 5-minute trials were conducted with the mother near, far, or absent with respect to her infant. When the mother was near, she sat in the same room as her child; when far, she was visible but in an adjacent room or hall; and when absent, she was in an adjacent room or hall and not visible to the infant. Five-minute breaks separated the trials. The order of the mothers' position was counterbalanced over the three trials within each treatment group.

Experimental Setting and Procedure

The living room of the subject's home was used, as were two rooms or hallways leading from the living room. Chairs for mother and stranger were placed at appropriate distances relative to a start mat in the living room where the infant was to be placed on the floor. A portable experimenter's partition was placed against a wall of the living room. The partition was constructed of unfinished plywood and contained a one-way mirror at the experimenter's eye level.

When the experimenter entered the house, the mother took her child out of the living room so the infant would not see the experimenter at all. The experimenter then positioned his

partition and prepared the setting. Next, he conferred briefly with the mother (without the child being present) to be sure she understood the procedure to be followed. He then hid in his observation box. Arrangements were made to keep extraneous people (and pets) out of the house for the duration of the study; telephones were removed from their hooks.

Once the experimenter was hidden, the mother brought the infant into the room and gave him an opportunity to explore the experimenter's partition if he desired. (Incidentally, babies generally ignored the box and only two of the 36 infants ever came over to the box and touched it.)

The mother carried her infant to the front door when she heard a knock, and opened the door to admit the female stranger. She introduced the stranger to the child, conversed with the stranger in a friendly manner for approximately one-half minute, and then walked with the stranger to the start mat, where she placed the infant, facing in the direction in which the adults would move, and gave him a novel toy. Mother and stranger each walked to their pre-assigned chairs and sat down. They did not converse with each other or with the infant, but could look and smile at the child. Timing of the trial began when the mother began to walk away from the child. At the end of the five-minute trial, the mother saw the stranger out while holding the infant. The second and third trials followed the same procedure, using a different novel toy in each trial. Order of toy presentation was randomized across subjects.

Measures

During each trial, the experimenter recorded several response measures by noting their presence or absence in each

of 30 10-second intervals. The measures were proximity to mother, proximity to stranger, fussing, crying, and touching a novel toy. Latency of these measures was defined as the first 10-second period of occurrence, and duration was defined as the total number of 10-second periods in which the behavior was exhibited.

Results

Descriptive Results

Overall, infants crawled to their mothers about one-half to two-thirds of the way through each trial, tending to stay near them once they were there. Only a few infants crawled to the stranger, and then only late in the trial. The babies fussed and cried infrequently and spent much of their time playing with the novel toys that were given to them.

Analyses of Variance

Analyses of variance were carried out to assess the effects of stranger distance, mother distance, and trials.

Stranger distance from the infants was found to be unrelated to their behavior.

Mother distance affected latency ($p<.01$) and duration ($p<.05$) of fussing and duration of play ($p<.05$). As mother-infant distance increased, babies fussed sooner and longer, and played less with the novel toys.

Trial number affected latency ($p<.01$) and duration ($p<.05$) of mother proximity: as the trials went on, infants crawled to their mothers earlier in the trial and tended consequently to stay near them longer. As trial number increased, the subjects also fussed sooner ($p<.05$) and played less with the

novel toys ($p<.05$).

Discussion

The effects of mother-infant distance on fussing and play support Bowlby's (1969, 1973) contention that attachment behavior is related to degree of maternal accessibility. As mothers sat farther away, infants fussed sooner and longer and played less with the novel toy. These results are also in harmony with Kagan's (Mussen, Conger, & Kagan, 1969) discrepancy hypothesis. According to the discrepancy hypothesis, stranger presence in conjunction with reduced maternal presence is likely to be a discrepant situation for the child, and thus provoke distress and induce attachment behavior.

However, the discrepancy hypothesis doesn't explain the lack of effect of stranger-infant distance on behavior. If stranger presence is a discrepant situation when mother is less accessible, does it not follow that as the stranger sits closer to the infant (and, as you will recall, just sits there, looking and smiling in response to the child, but not interacting with him any further), the situation could be considered increasingly discrepant from the usual? Perhaps the explanation for this finding is related to this lack of interaction. Perhaps because the stranger is not actively impinging upon the infant, is not approaching, or even moving, the child is less likely to become distressed. This would also account for the difference between this finding and those of Morgan and Ricciuti (1969) and Scarr and Salapatek (1970).

The effects of trials on proximity to mother, fussing, and play extend to the home setting the thesis of Brooks and

Lewis (1974) that in a static situation attachment behaviors increase with time, independent of experimental conditions. These effects may be the result of increased discrepancy caused by the mothers' (or stranger's) violation of normal behavioral patterns or the result of the decreasing novelty of the play situation.

The finding that mother-infant distance was unrelated to amount of stranger approach is probably a consequence of so few infants crawling to the stranger during the study. Ten-month-olds just don't seem to seek close proximity to a stranger during short experiments, even at home with mother close by.

It was concluded that the degree of maternal accessibility determines the kind and strength of attachment behavior in the home, that mobile infants display more following than signaling behavior to promote proximity, and that although infants do not seek the proximity of a stranger, stranger presence occasions little upset when mother is accessible.

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